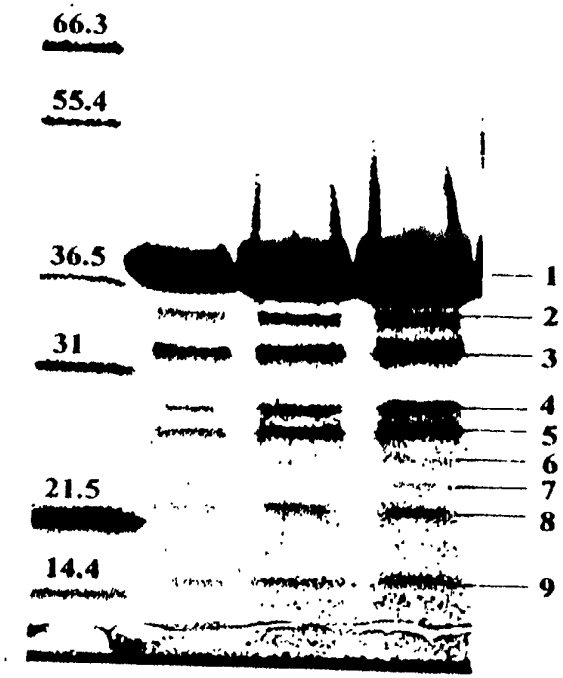
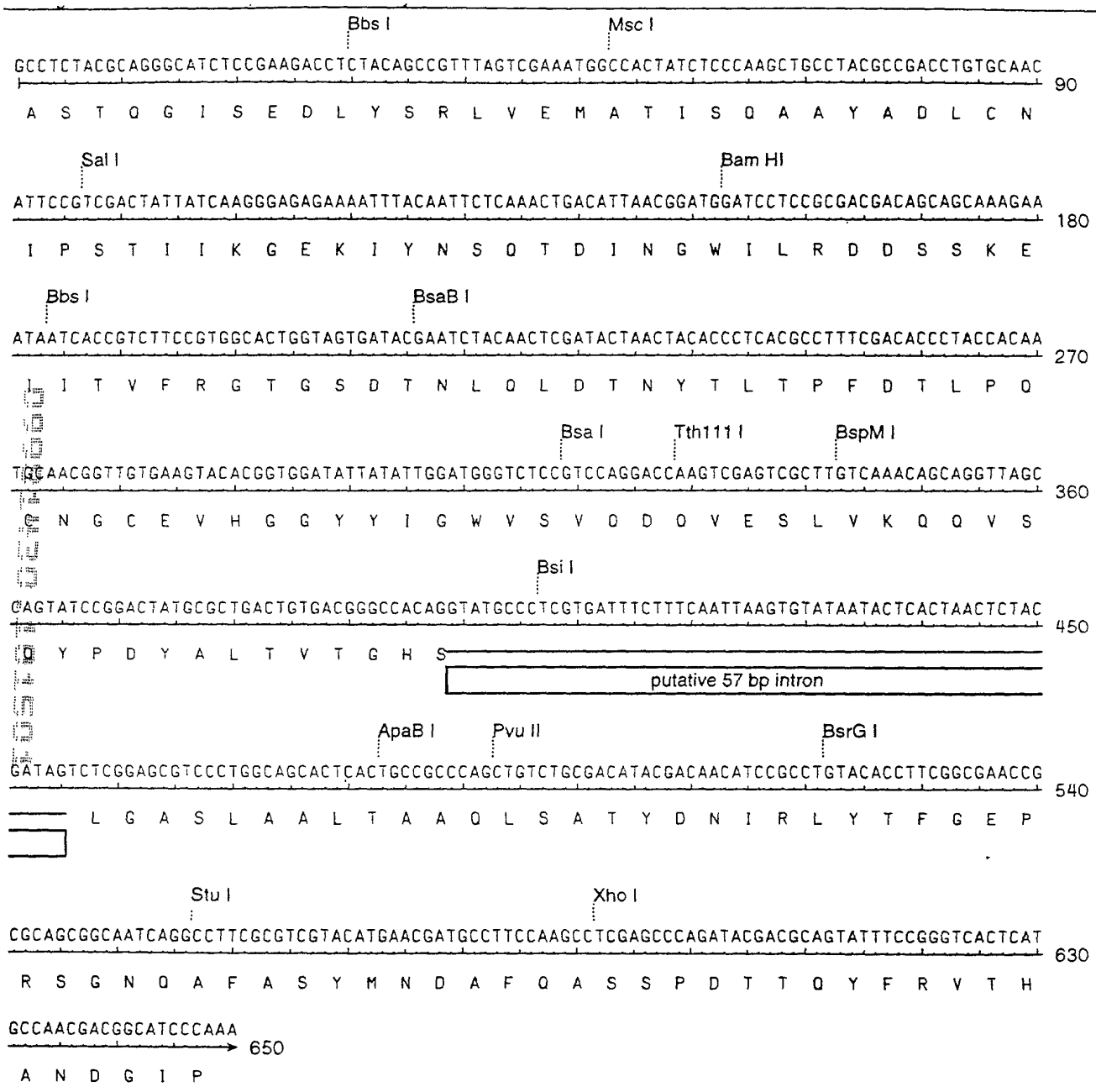


FIG 1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Msc I
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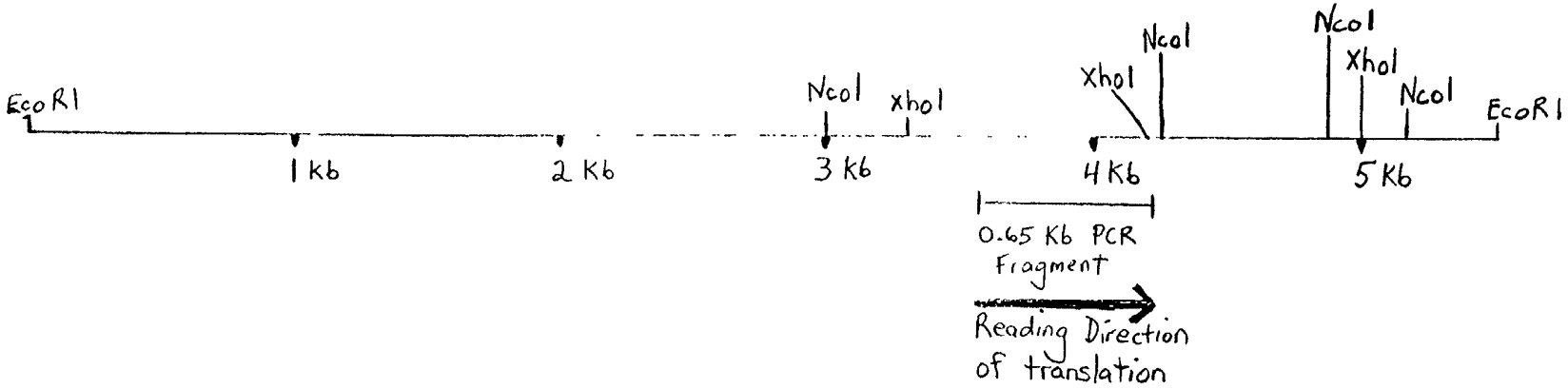
90
A S T Q G I S E D L Y S R L V E M A T I S Q A A Y A D L C N
Sal I
Bam HI
ATTCCGTCGACTATTATCAAGGGAGAGAAAATTTACAATTCTCAAACTGACATTAACGGATGGATCCTCCGCGACGACAGCAGCAAAGAA
180
I P S T I I K G E K I Y N S Q T D I N G W I L R D D S S K E
Bbs I
BsaB I
ATAATCACCGTCTTCCGTGGCACTGGTAGTGATACGAATCTACAACTCGATACTAACTACACCCTCACGCCTTTCGACACCCTACCACAA
270
I I T V F R G T G S D T N L Q L D T N Y T L T P F D T L P Q
Bsa I
Tth111 I
BspM I
TGCAACGGTTGTGAAGTACACGGTGGATATTATATTGGATGGGTCTCCGTCCAGGACCAAGTCGAGTCGCTTGTCAAACAGCAGGTTAGC
360
C N G C E V H G G Y Y I G W V S V Q D Q V E S L V K Q Q V S
Bsi I
CAGTATCCGGACTATGCGCTGACTGTGACGGGCCACAGGTATGCCCTCGTGATTTCTTTCAATTAAGTGTATAATACTCACTAACTCTAC
450
Q Y P D Y A L T V T G H S
putative 57 bp intron
ApaB I
Pvu II
BsrG I
GATAGTCTCGGAGCGTCCCTGGCAGCACTCACTGCCGCCCAGCTGTCTGCGACATACGACAACATCCGCCTGTACACCTTCGGCGAACCG
540
L G A S L A A L T A A Q L S A T Y D N I R L Y T F G E P
Stu I
Xho I
CGCAGCGGCAATCAGGCCTTCGCGTCGTACATGAACGATGCCTTCCAAGCCTCGAGCCCAGATACGACGCAGTATTTCCGGGTCACTCAT
630
R S G N Q A F A S Y M N D A F Q A S S P D T T Q Y F R V T H
GCCAACGACGGCATCCCAAA
650
A N D G I P

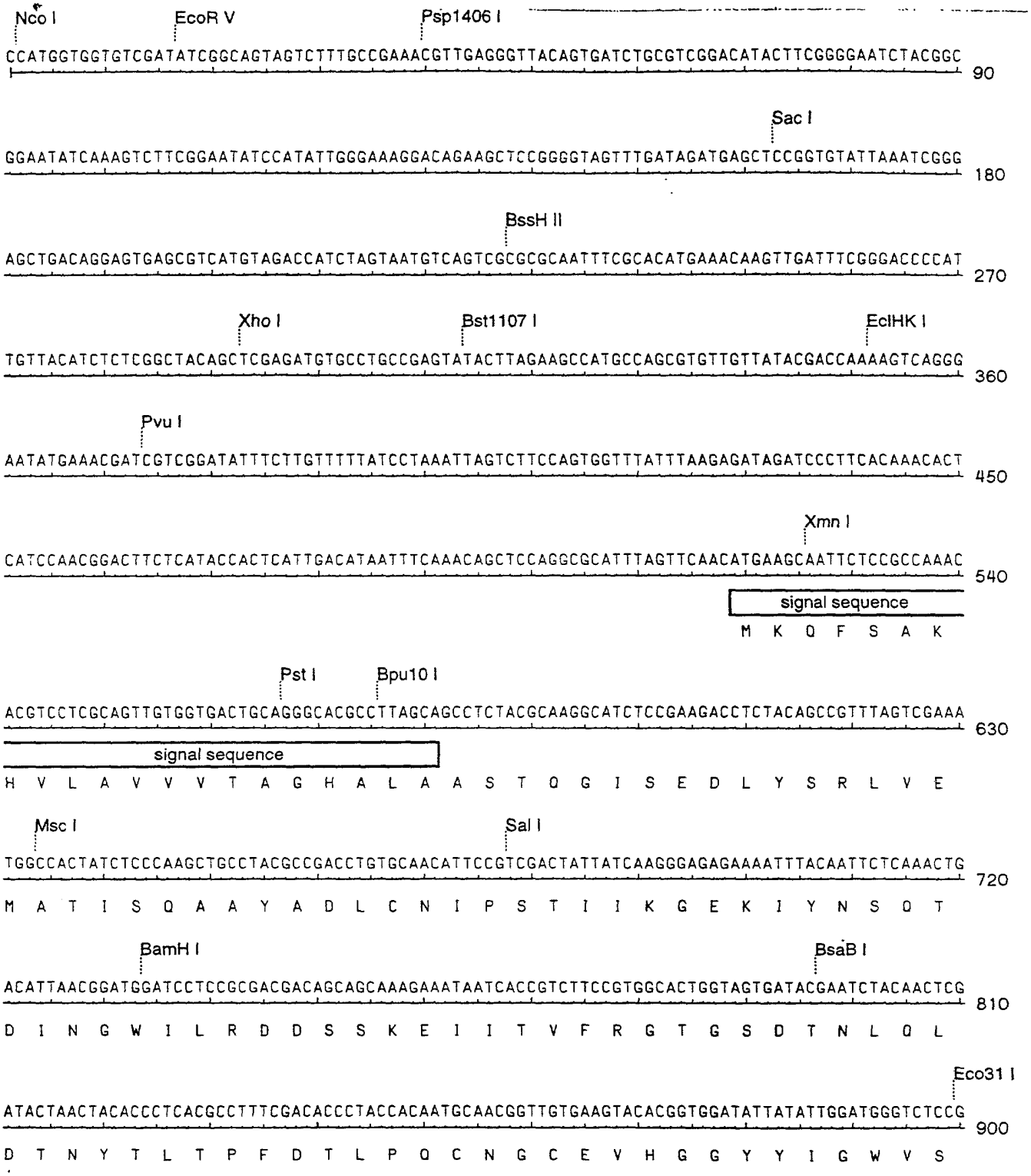
FIG. 2

FIG. 3



5.5 Kb EcoR1 Fragment cloned into pLITMUS 28 E.coli plasmid

FIG. 4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EcoR V
Psp1406 I
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90
Sac I
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180
BssH II
AGCTGACAGGAGTGAGCGTCATGTAGACCATCTAGTAATGTCAGTCGCGCGCAATTTCGCACATGAAACAAGTTGATTTCGGGACCCCAT
270
Xho I
Bst1107 I
EclHK I
TGTTACATCTCTCGGCTACAGCTCGAGATGTGCCTGCCGAGTATACTTAGAAGCCATGCCAGCGTGTTGTTATACGACCAAAAGTCAGGG
360
Pvu I
AATATGAAACGATCGTCGGATATTTCTTGTTTTTATCCTAAATTAGTCTTCCAGTGGTTTATTTAAGAGATAGATCCCTTCACAAACACT
450
Xmn I
CATCCAACGGACTTCTCATACCACTCATTGACATAATTTCAAACAGCTCCAGGCGCATTTAGTTCAACATGAAGCAATTCTCCGCCAAAC
540
signal sequence
M K Q F S A K
Pst I
Bpu10 I
ACGTCCTCGCAGTTGTGGTGACTGCAGGGCACGCCTTAGCAGCCTCTACGCAAGGCATCTCCGAAGACCTCTACAGCCGTTTAGTCGAAA
630
signal sequence
H V L A V V V T A G H A L A A S T Q G I S E D L Y S R L V E
Msc I
Sal I
TGGCCACTATCTCCCAAGCTGCCTACGCCGACCTGTGCAACATTCCGTCGACTATTATCAAGGGAGAGAAAATTTACAATTCTCAAACTG
720
M A T I S Q A A Y A D L C N I P S T I I K G E K I Y N S Q T
BamH I
BsaB I
ACATTAACGGATGGATCCTCCGCGACGACAGCAGCAAAGAAATAATCACCGTCTTCCGTGGCACTGGTAGTGATACGAATCTACAACTCG
810
D I N G W I L R D D S S K E I I T V F R G T G S D T N L Q L
Eco31 I
ATACTAACTACACCCTCACGCCTTTCGACACCCTACCACAATGCAACGGTTGTGAAGTACACGGTGGATATTATATTGGATGGGTCTCCG
900
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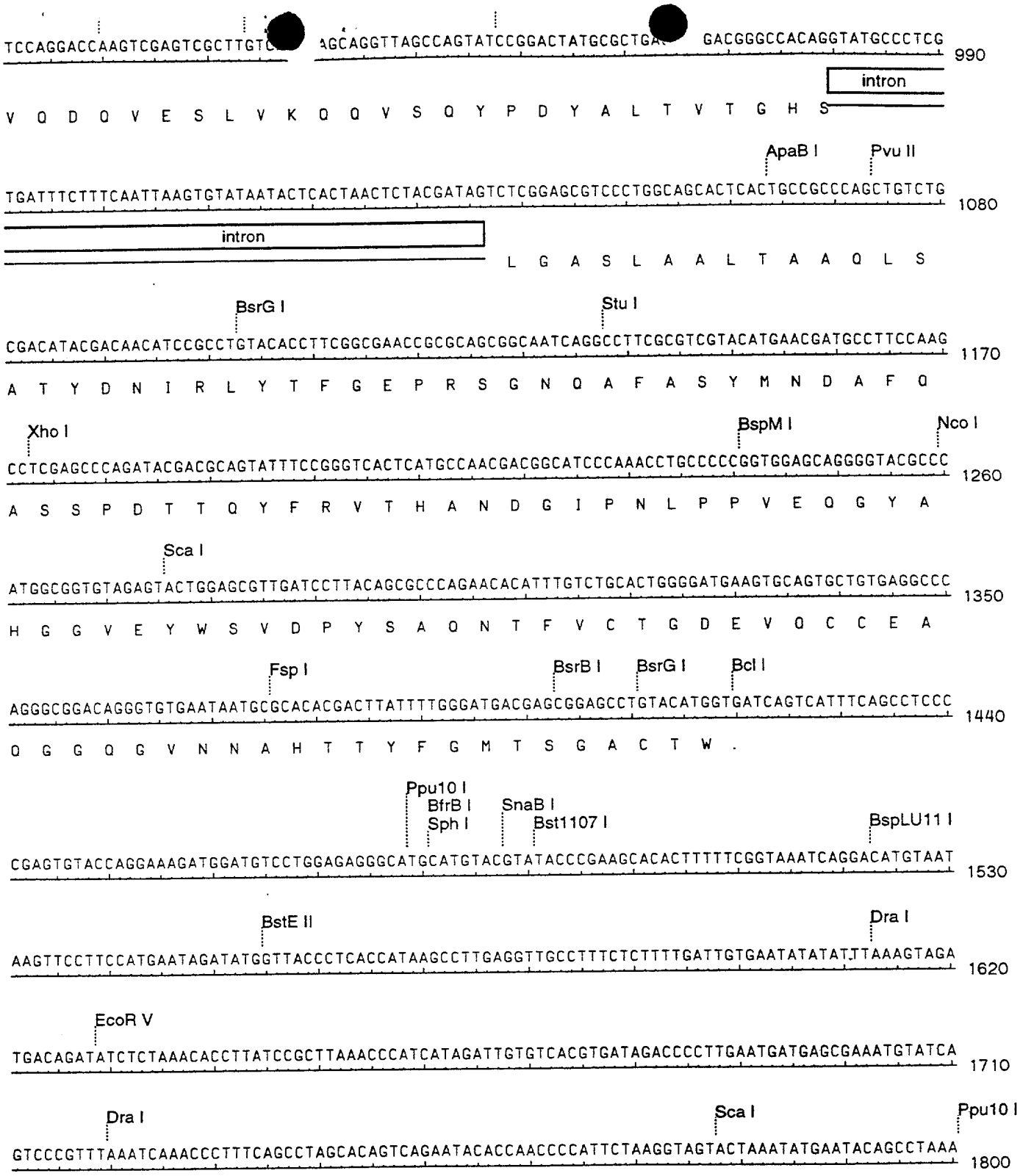
Fig. 5A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GACGGGCCACAGGTATGCCCTCG
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intron
V Q D Q V E S L V K Q Q V S Q Y P D Y A L T V T G H S
ApaB I
Pvu II
TGATTTCTTTCAATTAAGTGTATAATACTCACTAACTCTACGATAGTCTCGGAGCGTCCCTGGCAGCACTCACTGCCGCCCAGCTGTCTG
1080
intron
L G A S L A A L T A A Q L S
BsrG I
Stu I
CGACATACGACAACATCCGCCTGTACACCTTCGGCGAACCGCGCAGCGGCAATCAGGCCTTCGCGTCGTACATGAACGATGCCTTCCAAG
1170
A T Y D N I R L Y T F G E P R S G N Q A F A S Y M N D A F Q
Xho I
BspM I
Nco I
CCTCGAGCCCAGATACGACGCAGTATTTCCGGGTCACTCATGCCAACGACGGCATCCCAAACCTGCCCCCGGTGGAGCAGGGGTACGCCC
1260
A S S P D T T Q Y F R V T H A N D G I P N L P P V E Q G Y A
Sca I
ATGGCGGTGTAGAGTACTGGAGCGTTGATCCTTACAGCGCCCAGAACACATTTGTCTGCACTGGGGATGAAGTGCAGTGCTGTGAGGCCC
1350
H G G V E Y W S V D P Y S A Q N T F V C T G D E V Q C C E A
Fsp I
BsrB I
BsrG I
BclI
AGGGCGGACAGGGTGTGAATAATGCGCACACGACTTATTTTGGGATGACGAGCGGAGCCTGTACATGGTGATCAGTCATTTCAGCCTCCC
1440
Q G G Q G V N N A H T T Y F G M T S G A C T W .
Ppu10 I
BfrB I
Sph I
SnaB I
Bst1107 I
BspLU11 I
CGAGTGTACCAGGAAAGATGGATGTCCTGGAGAGGGCATGCATGTACGTATACCCGAAGCACACTTTTTTCGGTAAATCAGGACATGTAAT
1530
BstE II
Dra I
AAGTTCCTTCCATGAATAGATATGGTTACCCTCACCATAAGCCTTGAGGTTGCCTTTCTCTTTTGATTGTGAATATATATTTAAAGTAGA
1620
EcoR V
TGACAGATATCTCTAAACACCTTATCCGCTTAAACCCATCATAGATTGTGTCACGTGATAGACCCCTTGAATGATGAGCGAAATGTATCA
1710
Dra I
Sca I
Ppu10 I
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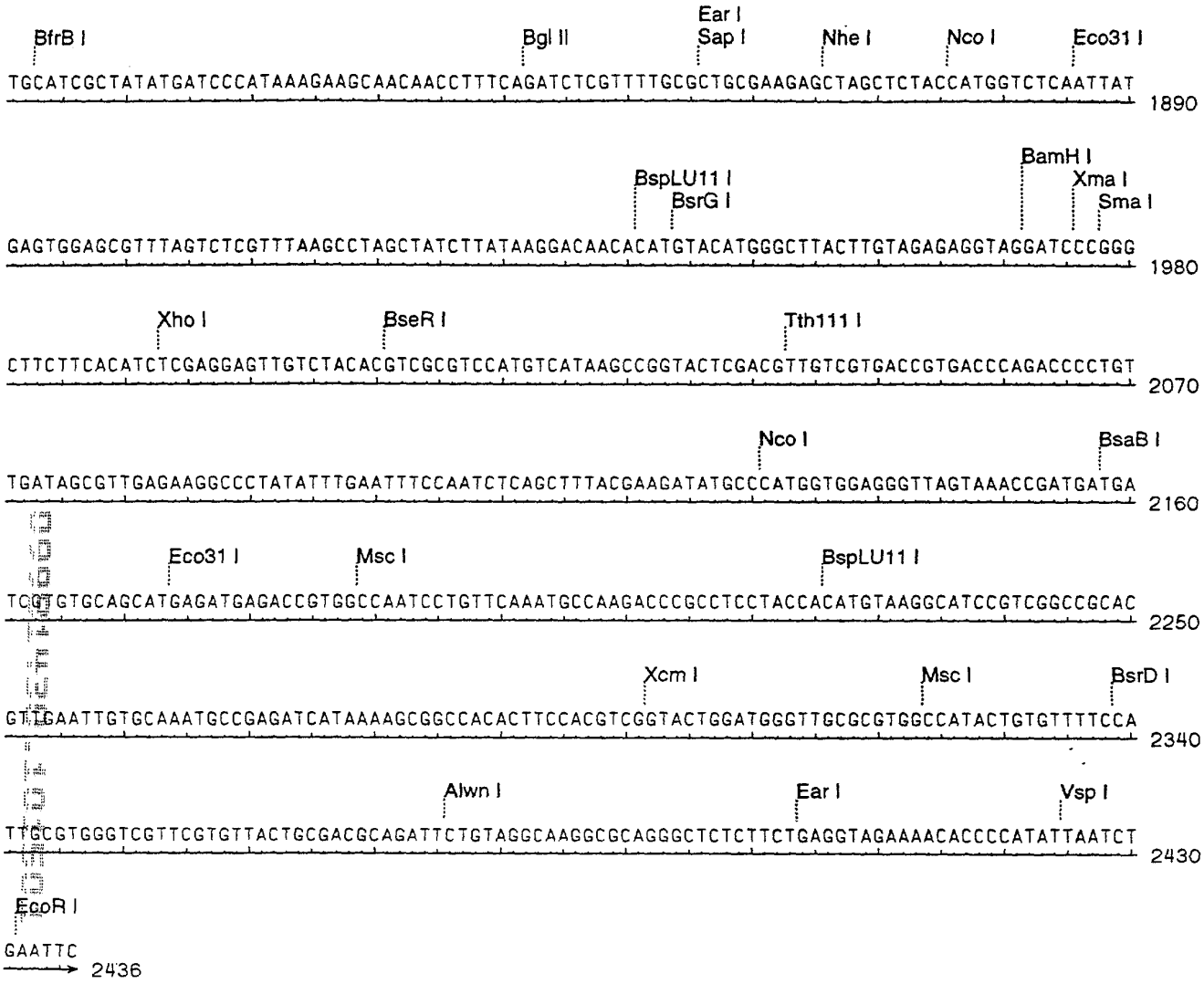
1800

Fig 5B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Bgl II
Ear I
Sap I
Nhe I
Nco I
Eco31 I
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1890
BamH I
BspLU11 I
BsrG I
Xma I
Sma I
GAGTGGAGCGTTTAGTCTCGTTTAAGCCTAGCTATCTTATAAGGACAACACATGTACATGGGCTTACTTGTAGAGAGGTAGGATCCCGGG
1980
Xho I
BseR I
Tth111 I
CTTCTTCACATCTCGAGGAGTTGTCTACACGTCGCGTCCATGTCATAAGCCGGTACTCGACGTTGTCGTGACCGTGACCCAGACCCCTGT
2070
Nco I
BsaB I
TGATAGCGTTGAGAAGGCCCTATATTTGAATTTCCAATCTCAGCTTTACGAAGATATGCCCATGGTGGAGGGTTAGTAAACCGATGATGA
2160
Eco31 I
Msc I
BspLU11 I
TCGTGTGCAGCATGAGATGAGACCGTGGCCAATCCTGTTCAAATGCCAAGACCCGCCTCCTACCACATGTAAGGCATCCGTCGGCCGCAC
2250
Xcm I
Msc I
BsrD I
GTTGAATTGTGCAAATGCCGAGATCATAAAAGCGGCCACACTTCCACGTCGGTACTGGATGGGTTGCGCGTGGCCATACTGTGTTTTCCA
2340
Alwn I
Ear I
Vsp I
TTGCGTGGGTCGTTCGTGTTACTGCGACGCAGATTCTGTAGGCAAGGCGCAGGGCTCTCTTCTGAGGTAGAAAACACCCCATATTAATCT
2430
EcoR I
GAATTC
2436

Fig. 5C

Figure 6 (SEQ.ID NO:29)

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CGGGGAATCTACGGCGGAATATCAAAGTCTTCGGAATATCCATATTGGGAAAGGACAGAAGCTCCGGGGTAGTTT
GATAGATGAGCTCCGGTGTATTAAATCGGGAGCTGACAGGAGTGAGCGTCATGTAGACCATCTAGTAATGTCAGT
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TGCCTGCCGAGTATACTTAGAAGCCATGCCAGCGTGTTGTTATACGACCAAAAGTCAGGGAATATGAAACGATCG
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CATCCAACGGACTTCTCATACCACTCATTGACATAATTTCAAACAGCTCCAGGCGCATTTAGTTCAACATGAAGC
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TCACGCCTTTCGACACCCTACCACAATGCAACGGTTGTGAAGTACACGGTGGATATTATATTGGATGGGTCTCCG
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ACAGGTATGCCCTCGTGATTTCTTTCAATTAAGTGTATAATACTCACTAACTCTACGATAGTCTCGGAGCGTCCC
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GCGGCAATCAGGCCTTCGCGTCGTACATGAACGATGCCTTCCAAGCCTCGAGCCCAGATACGACGCAGTATTTCC
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TAAACCCATCATAGATTGTGTCACGTGATAGACCCCTTGAATGATGAGCGAAATGTATCAGTCCCGTTTAAATCA
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GGCTTACTTGTAGAGAGGTAGGATCCCGGGCTTCTTCACATCTCGAGGAGTTGTCTACACGTCGCGTCCATGTCA
TAAGCCGGTACTCGACGTTGTCGTGACCGTGACCCAGACCCCTGTTGATAGCGTTGAGAAGGCCCTATATTTGAA
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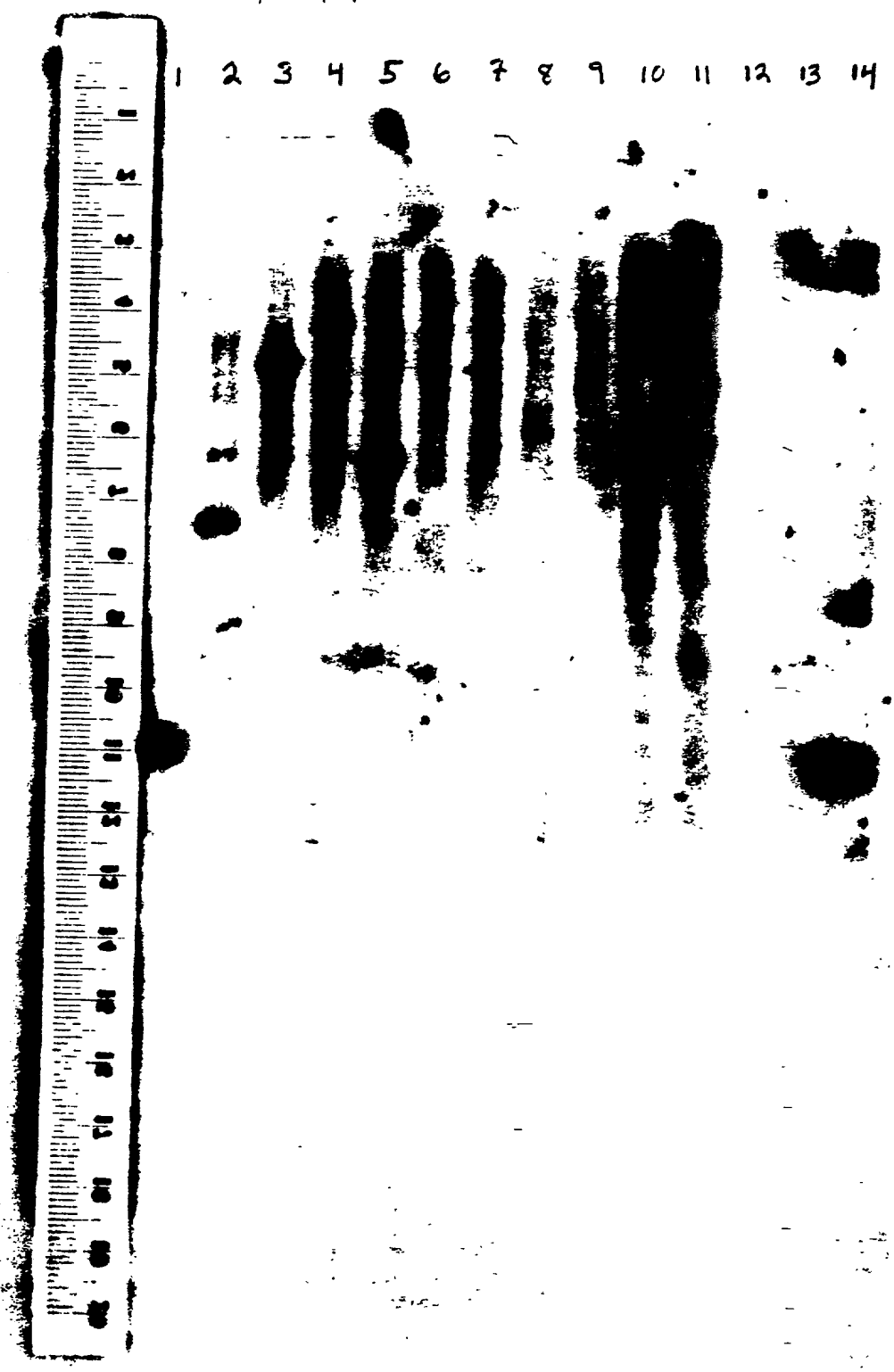

Fig. 7

BB 4/26/97 Gel 2

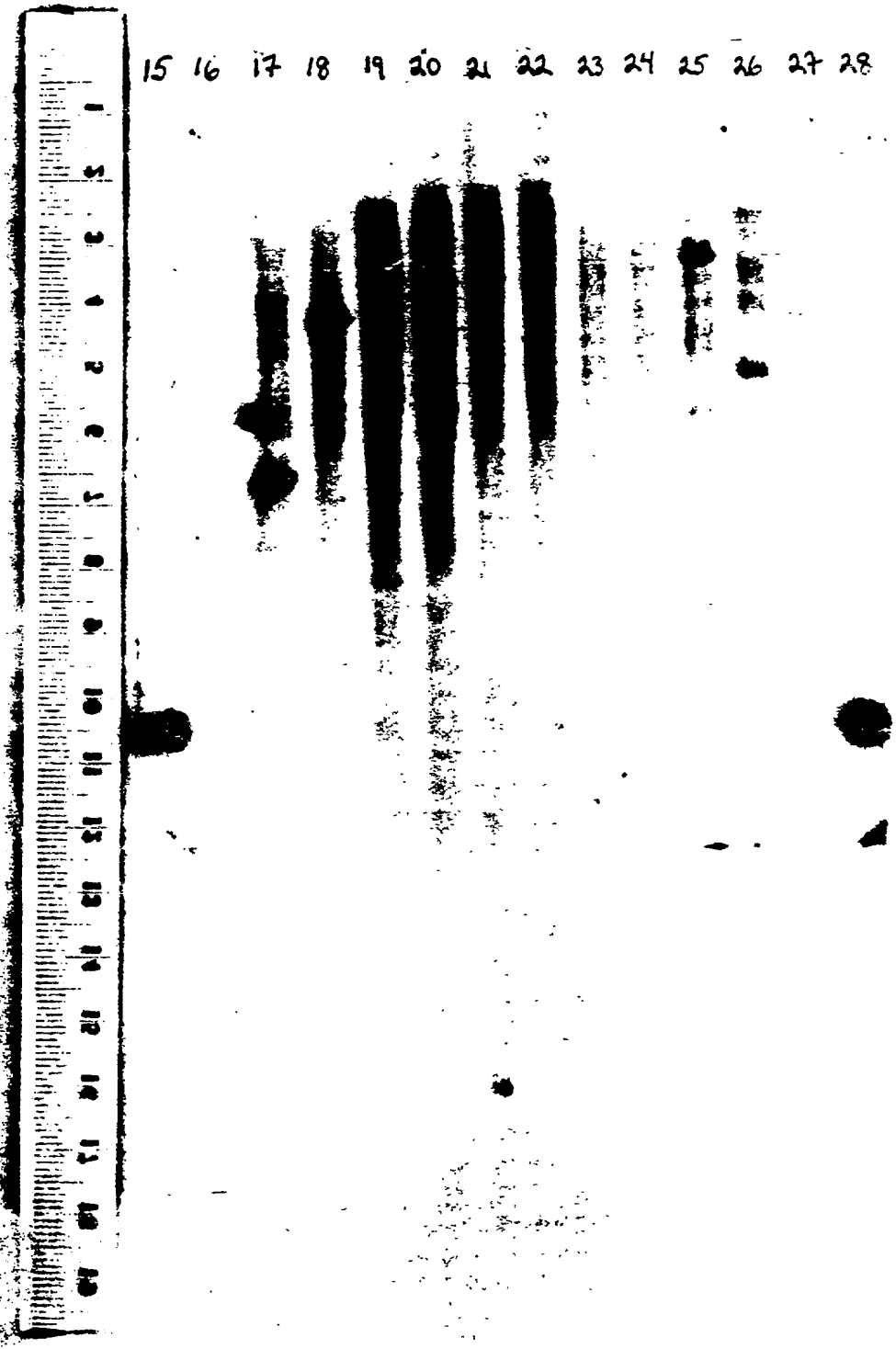

Fig. 8